WHAT IS CLAIMED IS:

1. Method for producing a safety wheel for subway coach bogie, or the like, running on pneumatic tires, adapted to be interposed between a chassis of the bogie and a corresponding pneumatic tire, in which a steel blank is taken above the temperature of austenitic transformation of said steel, said blank presenting the shape of the definitive wheel and comprising an outer peripheral zone comprising a braking portion, adapted to receive the action of a mechanical braking member, as well as a guiding portion projecting radially outwardly from the braking portion,

said method comprising the following steps of:

- effecting a selective tempering of the braking portion of the blank taken above the temperature of austenitic transformation of said steel, without subjecting the guiding portion to this tempering, then

- heating at least the tempered braking portion in order to effect an operation of annealing of this braking portion,

with the result that the hardness of the braking portion of the definitive wheel is clearly greater than the hardness of the guiding portion of this wheel.

2. Method according to Claim 1, wherein a selective tempering of the braking portion is effected for a duration of between 5 and 15 minutes, so as to take this braking portion to a temperature of between 150 and 250°C.

3. Method according to Claim 1, wherein the step of selective

tempering of the braking portion comprises the following steps of:

- disposing the blank taken to above the temperature of austenitic transformation of said steel, in substantially horizontal manner, its guiding portion being placed above its braking portion, then

- spraying the braking portion with a cooling liquid.

4. Method according to Claim 1, wherein at least the tempered braking portion is heated to a temperature of between 850 and 900°C, for a duration of between 2 and 3 hours.

5. Method according to Claim 1, wherein the whole of the blank is heated, after having effected tempering of the braking portion.

6. Method according to Claim 1, wherein said blank is made of a carbon steel in accordance with type R2 or type R8 of standard UIC 812-3.

7. Method according to Claim 6, wherein said carbon steel comprises, by weight, up to 0.700% of silicon, up to 0.120% of molybdenum and up to 0.400% of chromium.